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Mobilities in rural Africa: new connections, new challenges

Gina Porter, Department of Anthropology, Durham University, UK

Abstract

Fluid interdependencies of mobility – physical and virtual- are growing rapidly in sub-Saharan Africa: the remarkable expansion of mobile phone networks is bringing a tangible new dimension of connectivity into mobility, transport and access equations on the ground. This article draws on in-depth field research, including co-investigation with two groups often disadvantaged in their physical mobility, youth and older people, to explicate some current African developments and their departure from prevailing Western-based conceptualisations of space-time interactions (regarding the potential for space-time flexibility and micro-coordination afforded by mobile phones). Despite the fact that face-to-face interaction is often of great significance in Africa, when the value attached to personalized relationships is balanced against factors of widespread poverty and irregular, sometimes very dangerous transport, the potential for phone substitution appears greater than in many Western contexts. Better distance management through phone use may be particularly closely associated with populations with very low disposable incomes, and/or those whose physical mobility is limited, for instance by disability, infirmity, age, or gender

Key words: *co-presence; phones; physical mobility; poverty; motorcycle-taxi transport*

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1. Introduction

The potential for some substitution of physical by virtual mobility has long been present in the West, through the widespread availability of fixed land-lines. For Africa's poor, by contrast, this has only become feasible in the last decade, with the advent of cheap mobile phones (Aker and Mbiti 2010; Porter 2012; Chavula 2013). Commercial network coverage, albeit as yet incomplete, is reaching ever-remoter areas: in off-road villages, airtime offers are displayed at local kiosks and a brisk trade in sim cards, airtime and phone charging (using solar panels) is commonplace. Sharing of phones between family, friends and neighbours reduces capital expenditure in very poor households, but for many – especially youth- the phone and its associated running costs are a priority, sometimes even above food (fieldwork, www.dur.ac.uk/child.phones/). Phone contact in Africa is now commonly perceived not merely as a significant conduit for business interactions but, above all, as key to the everyday maintenance of the social networks so essential for protecting and supporting individuals and families in times of stress. The implications of phone usage for daily mobility practices in Africa are still emerging, but data presented in this article suggest intriguing variation from Western practices: precarity brings to the fore dimensions of the mobilities time-space nexus little considered to date.

Phone usage associated with the coordination of mobilities in everyday life in the West is contrasted in this article with empirical evidence for two rural districts in Africa, where phones are now changing the mobility landscapes of commonly disadvantaged groups. One case-study focuses on older people in Tanzania, the second on young people in Malawi. Both are extremely poor countries, close to the bottom of the Human Development Index (Tanzania 159th, Malawi 174th, out of 187 countries, 2014). The final section of the article considers how extensive distance management through phone use, and associated reductions

in face-to-face contact, derives from conditions of deprivation and constraint, in populations with very low disposable incomes, and/or those for whom physical mobility is restricted, whether by infirmity, age or gender. This encourages wider reflection on the significance of precarity for virtual/physical mobility interactions.

Mobile phones and daily mobility practices: global perspectives

Phone connectivity can transform experiences of space and time, either by substituting for or reconfiguring physical mobility. Kwan (2006) pointed to the need for investigation of the phone's role in alleviating mobility-related social exclusion, but the majority of research continues to focus on resource-rich societies. Thus, a growing literature attests how the reconfiguration of time-space geographies through mobile phones is offering new possibilities for micro-coordination and re-scheduling *on the move* in cities in the West. Here, mobile phones and internet can help accommodate uncertainties and travel challenges, especially for women, by augmenting rather than directly replacing corporeal mobility, though the potential to soften space-time fixity constraints will depend, in part, on the household socio-spatial context, lifestyle and personalities of those involved (Schwanen and Kwan 2008). Nevertheless, more space-time flexibility is now feasible for many, because ICT has loosened the associations between activity, time and space: "punctual time" transforms into "negotiated time", while travel time itself can be productively occupied (Jain and Lyons 2008; Elliott and Urry 2010, 32; Ben-Elia et al. 2014). Co-ordination of mobility occurs both before and during actual travel, but without any evident impact on modal choice (Peters et al. 2010; Line et al. 2011).

Urry (2012:26) emphasises, however, that the need for occasional co-presence with significant faces remains: sufficient physical travel is required to satisfy particular social obligations and to observe, "the rituals and sustained quality time often at particular moments

and within specific kinds of ambient place, places appropriate for a certain affective quality”. Given the fundamental differences between face-to-face interaction and electronically mediated exchange, this importance attached to face-to-face interaction is hardly surprising. As Nohria and Eccles (1992: 293-99) observe, co-presence in time and place allows a cycle of interruption, feedback and repair that is virtually instantaneous. This has implications for negotiating identity, uncertainty and ambiguity, reducing duplicity, and for establishing and maintaining multidimensional, robust relationships: it may be essential for mobilizing collective action in situations of uncertainty and risk. The phone, by contrast, may filter out not only social context clues such as location, but the full range of psycho-emotional reactions such as discomfort or attraction.

Rural Africa offers a very different context within which to observe new connectivities and their impacts. As Schwanen and Kwan (2008: 1375) emphasise, since the social, physical and technological realms are mutually constitutive of one another, we cannot assume that the socio-spatial implications of new technologies found in the West will be replicated in other socio-physical contexts and networks elsewhere. Africa is characterised both by widespread poverty and irregular, sometimes very dangerous transport, but also an oft-observed significance of face-to-face interaction (including in business, where personalised relationships are commonly crucial). This raises interesting questions: Are mobile phones encouraging new patterns of micro-coordination and re-scheduling on the move, as in the West? Or is further space-time flexibility simply unnecessary, given that activity times have, of necessity, commonly tended towards flexibility, because of travel uncertainties? Is ICT having any impact on transport modal choice in this very different context? And since available resources are so sparse, will the tipping point at which co-presence is deemed essential be delayed? An examination of two African rural contexts facilitates reflection on these questions.

Accessibility challenges in rural Africa: where phones can make a difference

The challenges faced by Africa's rural people in accessing distant services and markets are enormous. Poor provision and maintenance of road infrastructure plus poor transport service availability, unreliability, high fares and safety issues are widespread constraints on rural travel, especially since ownership of motorised vehicles and IMTs is often restricted to rural elites. Certain disadvantaged groups – the old, the young, infirm, and women- face particular mobility difficulties; in the case of women and girls, this may include cultural constraints on their movement (Porter 2011). In rural contexts new, phone-enabled connectivities appear to have the potential to ameliorate poor access conditions, whether by reducing the need to travel to services, or by enabling more efficient travel when physical mobility is essential. M-health, in particular, is enabling some substitution of virtual for physical mobility (Deglise et al. 2012) and, for emergency health-care, mobile phones now widely facilitate access to essential transport. In the agricultural sector, the potential of mobile phones to facilitate rural produce trade, especially when allied to mobile money transfers, has been evident for some years (Overa 2006).

The two case-studies presented below illustrate the growing interdependencies between physical and virtual mobility and the implications of the new connectivities for everyday mobility practices in rural lives. In each case-study, consideration is given both to questions of direct phone substitution for travel and to the way phones may facilitate more efficient travel organisation as transport operators and their customers connect. These studies employed a similar methodology, in which co-investigation with non-academic community members, recruited as researchers, played a key part in establishing vital questions for

subsequent qualitative and survey research (Porter and Abane 2008; Porter et al. 2010; Porter 2014; Porter et al. 2014). This is particularly helpful when researching relatively disadvantaged groups.

Older people's mobility and the new connectivities in Kibaha district, Tanzania

In 2012, a ten-village study (one settlement on the paved road, the remainder off-road) aimed at understanding older people's mobility (in particular, their access to health services and livelihoods), a little-explored issue. Interviews conducted by twelve older people with their peers (N=74), academic-led in-depth checklist interviews with older people and key informants (N=194), and a small questionnaire survey administered to older people (N=339), pointed to the emergence of significant new connectivities associated with the recent introduction of motorcycle-taxis and mobile phones. The impact on older people's lives, especially in off-road villages, has been substantial.

Motor-cycle taxi services (*boda-boda*), emerged only between c.2007-2009 in Kibaha district, associated with the availability of cheap Chinese imported motorcycles. They are now the principal transport mode, except along main the paved road: previously, residents had to walk or cycle. It is no exaggeration to state that *boda-boda* has transformed rural lives: in the week prior to the survey, 18 percent of older women and 31percent of older men had used their services and there is widespread attestation to their significance in accessing health and other facilities, especially in emergencies. Despite the discomfort of pillion-travel and expressed concerns about the speed at which *boda-boda* are driven, the only real off-road alternative is walking. Even in the roadside study settlement where buses are available (and cheaper), *boda-boda* are valued because they enable door-to-door vehicle access (an important attribute in infirmity or when carrying heavy loads), and they ply their business

through the night when other transport has stopped (Porter et al. 2013). For young men meanwhile, boda-boda offers a significant new livelihood option which provides a year-round income, unlike farming. In-depth interviews were conducted with thirty-five drivers aged between fourteen and thirty-eight years: most drove motorcycles owned by their father, rural elites or ex-charcoal producers living nearby. Those driving for non-family members normally pay a standing daily rate and then keep the balance, which encourages long hours and high speeds, thus contributing to high accident rates. Between eight and thirty boda-boda operators were based at each village station.

Meanwhile, the massive expansion of mobile phone ownership in Kibaha has brought an important complementary connector into the rural access equation. This is evident from both transport user and operator perspectives. For infirm older people, even a short walk to the village boda-boda station can present a massive hurdle: the potential to call transport operators to their home is a substantial benefit: *“I have a phone and in my phone contact I have one number of a boda-boda operator who I usually call in case I need (him)”* (Widow 67y). Remarkably, 41 percent of older men (sixty+) surveyed owned phones and 15 percent of older women (N=339), often a gift from their children in town; 58 percent of men and 49 percent of women reported the presence of a phone in their household which is available for them to use. Beyond the immediate household, phones are also widely available through relatives and friends - sharing is the norm. Meanwhile, all but one of the boda-boda drivers interviewed owned a mobile phone, and reported that up to twenty clients had their number stored. The one nineteen-year-old driver who did not possess a phone observed that this was making his business difficult.

This is not to suggest that everyone can afford regular use of boda-bodas: as one (24y) driver observed, “*(older people) have boda-boda drivers’ numbers. Whenever there is a need they call the bodaboda instead of walking to where the bodabodas park, but airtime and charging are still a (cost) problem.*” Many older people still walk long distances to the clinic, to market and other key destination but, in emergencies, communities often come together to help pay for calls and boda-boda travel.

While the mobile phone can enable older people to access essential transport, in many cases they reported that phone use has reduced their overall travel: “*I don’t have to travel so much nowadays - maybe when there is a funeral or a crucial thing for me to travel, but for minor things I use my brother’s phone and we talk*” (Woman 66y). This substitution of virtual for physical mobility is often welcomed by older, less mobile people, especially those whose family live in distant places. Moreover, city dwellers now frequently send remittances by phone to the villages using phone-enabled mobile money services (for instance, where elderly parents are looking after grandchildren): “*I use M-PESA; my children usually send money through my chip (Vodacom-number), then they call my friend through his phone telling how much they have sent through my Vodacom-line, so I just go with my chip to the Vodacom shop to take money*” (Man 66y). This brings reported savings in time, cost and potential travel accidents or theft on the journey. There was, however, an observed down-side, for some interviewees: “*Most older people have phones now. They call their children who are far away. If you don’t remind the children they forget you and your needs*” (Man 71y, caring for five young orphaned grandchildren); “*Phone has changed travel patterns- in the past my children and other relatives used to come to greet me but now they just call*” (Widow, 80y). The reduction of face-to-face interaction which is enabled by substitution of physical by

virtual mobility ironically leaves some older people feeling more isolated than before, as issue to which I will return.

Young people's mobility and the new connectivities in rural Lilongwe, Malawi

This section draws on ongoing research into young people's phone use and associated mobility practices in a different (three-country) study in sub-Saharan Africa (www.dur.ac.uk/child.phones/). It refers specifically to evidence from two off-road rural settlements in Lilongwe district, Malawi (one relatively large village with services including a secondary school and health centre, the second more remote and with no services at all), though the broader conclusions resonate with emerging project findings for rural locations elsewhere. As with Kibaha, although the villages are located within about sixty miles of the country's capital city, rurality prevails. The methodology employed mirrors that of the previous case-study, though here focused on youth aged c. nine to twenty-five years: qualitative research with young people and other key informants (N=138, including peer-researcher interviews) and a questionnaire survey to young people (N=378) (i.e. for these two Lilongwe settlements alone).

Throughout Malawi, unlike in Tanzania's Kibaha district, motorcycle-taxis are still relatively rare. Transport services in the study settlements are extremely poor, with bicycle-taxis and a few ox-carts the only transport modes regularly available. The substantial trade in charcoal is mostly evacuated by externally-based pick-ups organised by private dealers: these occasionally carry a few passengers from the villages. Livings are precarious, so most young people lack resources to pay for the limited transport available, few have bicycles and almost all walk to school, local markets etc.

Mobile phone networks have only recently become accessible in these villages and phone-ownership is still extremely low, including among youth, though -as elsewhere – they are keen to embrace this new technology. Youth have few resources to facilitate phone purchase, and though some reported being given phones by family members working in South Africa, only 7 percent of young people in the larger village owned a working cell-phone, 6 percent in the smaller, remoter village (predominantly males in each case). However, 39 percent of respondents in the larger village and 30 percent in the remoter village said that other members of their household owned a phone. Sixty-eight percent of those surveyed in the larger village had used a cell-phone at some point, as had 55 percent in the remoter village: sharing of phones among household members, neighbours and friends is evidently widespread (as in Kibaha). A few young people in both settlements reported having received funds through mobile money services.

In the context of limited transport in the locality, the potential opportunities to benefit from connectivities between phones and commercial transport operations are fewer than in Kibaha. In the major roadside settlement to which these villages are connected by earth road, bicycle-taxi operators report significant benefits from phone ownership in building a customer base, which extends into the surrounding rural settlements:

“When a customer comes, we all fight, compete ...unless the customer has a specific preferred bicycle-taxi driver. Therefore, those of us with phones have a fair advantage over our friends. Our customers call us to pick them from various places, so we compete less with others... I now have many customers.” (26y bicycle-taxi operator).

In the study villages, however, none of the youth interviewed referred to coordination of transport arrangements by phone.

By contrast, there are many interview reports of opportunities being taken to substitute phone contact for travel, especially to more distant locations, whether for business or social reasons:

“(foster child) calls her father who stays in Chilobwe, once in a while... just to chat...she doesn’t have to travel all the way to see and talk” (grandfather 70y); *“I sometimes call the wholesaler ... to find out if baking flour is in stock”* (before walking there; male tearoom owner, 23y). Comparisons between transport costs and a phone-call are often drawn:

“(before) I was being forced to travel (to see how relatives are)- with a cell phone it’s cheap since I just call them” (male 27y); *“I only used K50 for the airtel units (to inform a relative about his grandmother’s funeral, rather) than...K100 for a bicycle-taxi, so I feel it was cost-cutting”* (male 28y). For long journeys, the cost advantages are particularly clear. As one unemployed 16y girl, unable to continue school because of lack of examination fees observed, why save up 6000 Kwacha for a return ticket to visit her sister, when a call costs only 100 Kwacha. Even for journeys where no direct monetary cost will be incurred, time saved in avoiding needless long walks is appreciated: *“Before I started using the phone in my business, sometimes I used to travel (to town) only to come back without anything because ... people have not started selling their produce or the prices are too high”* (woman 22y, farmer/groundnut dealer).

In the survey, young people who had used a mobile phone in the last 12 months were asked how this had impacted on their travel: although approximately 60 percent overall said it had made no impact, 30 percent in both settlements reported that use of mobile phones had led to a reduction in their longer-distance (irregular) journeys, compared to under 10 percent who said it had led to an increase. Data disaggregation by gender indicates that impact of phone use on journey reduction had been particularly great among males (who are likely to have made more long journeys than females prior to phone adoption, given commonly greater

access to resources). Forty-six percent of males in the small, remoter settlement and 35 percent in the large settlement report taking fewer long journeys as a result of phone usage (as opposed to 10 percent in both settlements making more long journeys). (For small, local, day-to-day journeys, mobile phones are less clearly associated with travel reduction among either gender, because regular household phone usage currently imposes regular additional local trips for charging batteries and buying airtime: these will probably reduce as small phone-service businesses emerge within the settlement).

Taking the qualitative and survey data together, it appears that, for some youth- especially males - significant gains are being made through more efficient use of transport facilitated by mobile phones for longer-distance journeys. Advance calls are highly advantageous for checking on the prior availability of people or goods and associated journey-planning, before committing funds to travel. However (as with older people), the importance of at least occasional face-to-face for maintaining personal relationships was sometimes raised; too much reliance on the phone was seen to encourage what one respondent called “*taking away the beauty of people meeting face-to-face*” (life history, male 31y). A mother (35y) whose phone was broken observed, “*although the phone made the difference (fewer visits to her three children living with grandmother in a village two hours walk away), I could feel the distance between us, so I would organise a trip to go and see them*”. Co-presence is discussed further below.

Discussion and conclusion: distance management in contexts of remoteness and deep poverty

Fluid interdependencies of mobility – physical and virtual- are growing rapidly in Africa: the remarkable expansion of mobile phone networks is bringing a tangible new dimension of

connectivity into mobility, transport and access equations on the ground. For rural populations with very low disposable incomes, the potential for better distance management offers considerable benefits. Such advantages are likely to be compounded among people whose physical mobility is also constrained. The case-studies illustrated how this is working out for two different age groups, in two different countries, yet in fairly similar types of rural place.

In Kibaha, Tanzania, motorcycle taxis have already considerably improved older people's access to health, other services and overall well-being. This strongly echoes earlier findings from my research on Nigeria's Jos Plateau 1991-2001, where perceptions of improved well-being among off-road populations was directly linked to the arrival of motorcycle-taxis. Though costly to hire, they could negotiate rough tracks with relative ease. Despite fares double or triple those by bus (where available) on the same route, motorcycle-taxis brought not only greater security in the event of emergencies, but also a new sense of connectedness to the wider world (Porter 2002). Although many African governments are concerned to regulate (or ban) motorcycle-taxis, in view of high accident rates and a perceived association with unruly youth, their spread to new areas continues, seemingly inexorably: they fulfil hitherto unmet needs across the continent.

The recent rapid spread of mobile phones across rural Africa has compounded the benefits now afforded by motorcycle-taxis in many locations, since transport can be called up when required, rather than having to search for a vehicle (often involving a long walk to a distant paved road). Despite relatively high fares, for the less-mobile - including many older people - this integrated connectivity brings a very significant sense of security in the absence of alternative transport, especially in emergencies.

In both case-studies, phones not only help organise access to transport, but also enable transport substitution. In Lilongwe district, where there is little locally-available transport of any type, phone calls reduce the number of required long journeys, many of which are occasioned by social obligations or the need to obtain material or financial resources like school fees. If physical mobility is essential, whether to see someone in person, or to obtain/sell goods, travel now usually takes place only once the caller is assured of their availability. In both case-studies, respondents contrasted the cost of specific journeys with the cost of a phone call (rarely with texting/sms), to illustrate the benefits they gained by substituting virtual for physical mobility. In contexts of deep poverty, the phone now presents a much valued tool in survival strategy kits, especially for sourcing external resources through family contacts. Essential journeys continue to be made, but they can be more efficiently planned and executed; this is especially valuable where transport services are sparse and incomes low. Evidence of increased space-time flexibility, of the type which has emerged in Western cities through micro-coordination and re-scheduling on the move, is absent and would be difficult, given (as yet) often limited rural phone-network connectivity. In any case, as result of persistent rural travel uncertainties, time-flexibility is already deeply embedded in rural lives. However, some reworking of current space-time flexibilities to encompass the opportunities that the new connectivities present is evident. Messages now flow freely to inform about imminent key events such as funerals, when in the past such information often arrived too late for participation. Modal choice has been affected (by contrast with Western contexts) because, wherever motorcycle-taxi services emerge, their phone-enabled drivers offer convenience which has hitherto been unavailable.

However, in both case-studies some respondents observed the limitations of the phone as a travel substitute and the importance of co-presence, particularly for *emotional* well-being. This was often expressed simply as a desire to meet with close family or lovers resident at a

distance. The centrality of mobility beyond basic survival, for people's social and emotional lives, appears as strong in Africa as in the West: however, respondent narratives suggest that, in practice, face-to-face meetings with distant others are now frequently rationed. This is certainly a factor of poverty among both youth and elders, but also relates to prevailing mobility constraints. Poor transport availability, and potential breakdowns, accidents and harassment en-route, all encourage careful assessment of a journey's value. In the West, those with strong network capital have "the capacity to engender and sustain social relations with those people who are not necessarily proximate", and so generate emotional, financial and practical benefit (Urry 2012, 197). Many respondents in these African cases are now busily engaged in efforts to build their network capital through the phone: however, the tipping point at which co-presence is deemed essential is evidently delayed in conditions of precarity.

On a related theme, little reference was made in these rural spaces to any benefits of travel time (Jain and Lyons 2008), apart from occasional comments by young people about chatting while walking with friends. Lilongwe youth reported frequent journeys occasioned by social obligation linked to their lowly position in local hierarchies of power; these they willingly substituted with a short phone conversation (though from the perspective of an older relative, the failure to visit might be perceived as a significant loss). For older people in Kibaha, long walks are commonly perceived as a harsh imposition, to be endured not enjoyed: among the poorest, motorcycle-taxi journeys are limited to health emergencies. There seems little resonance, as yet, with Western scenarios where the phone is a travel companion and support, used to amuse or improvise and reschedule on the move by activating a network of connections telephonically for maximum flexibility (Licoppe 2004, 139). Variable mobile network provision in remoter rural areas and consequent interrupted connectivity is currently a significant constraint: the mobile phone is, as yet, principally a home-based technology

(albeit of enormous value as such, in the absence of land lines). However, network-coverage is expanding exponentially in Africa: the potential for novel on-journey amusements and improvisations is on the horizon.

To conclude, reflections on the association between phones and travel behaviour in this article extend a debate that has continued for at least thirty years in Western contexts, where the overall assessment indicates no concrete evidence of major decline in distance travelled (Aguilera et al. 2012; Ben-Elia et al. 2014). These case-studies suggest a different scenario. Although social networks are densely threaded through the lives of respondents, the friction of distance is evidently stronger than in Western contexts, especially in rural locations where both transport and financial resources are extremely scarce and other mobility constraints, such as those associated with infirmity or age, may come into play. Urry's argument (2012) that relationships that are maintained at-a-distance often involve substantial personal, emotional and relationship costs, clearly holds up in Africa as elsewhere, but against this must be set the reality of costs, financial and otherwise, of travel in what remains largely a walking world. Variation across the globe in patterns and practices of ICT use, mobility and associated connectivities are to be expected: the ways in which perceived needs for co-presence intersect with and mediate physical travel are complex and contingent. The mobility conceptualisations developed within late capitalist urban societies have limited application in rural Africa because extreme precarity interposes different constraints: as Schwanen et al. (2008, 2120) observe, "geography is certainly not dead in the Information Age"!

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Gina Porter is a Professor in the Department of Anthropology, Durham University, UK. E-mail: r.e.porter@durham.ac.uk Her research interests are currently focused on mobility, transport and the use of mobile phones in sub-Saharan Africa.